PATENT COOPERATION TREATY

From the:
INTERNATIONAL SEARCHING AUTHORITY

To:

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PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)* 4 FEB 2005

Applicant's or agent's file reference
504423/142

FOR FURTHER ACTION
See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/NZ2004/000136	30 June 2004	2 July 2003

International Patent Classification (IPC) or both national classification and IPC
Int. Cl.[7] A23L 1/10

Applicant
GRANATE SEED LIMITED et al

1. This opinion contains indications relating to the following items:

- [X] Box No. I — Basis of the opinion
- [ ] Box No. II — Priority
- [ ] Box No. III — Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- [ ] Box No. IV — Lack of unity of invention
- [X] Box No. V — Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- [ ] Box No. VI — Certain documents cited
- [ ] Box No. VII — Certain defects in the international application
- [ ] Box No. VIII — Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

   ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

   a. type of material

      ☐ a sequence listing
      ☐ table(s) related to the sequence listing

   b. format of material

      ☐ in written format
      ☐ in computer readable form

   c. time of filing/furnishing

      ☐ contained in the international application as filed.
      ☐ filed together with the international application in computer readable form.
      ☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

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Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	1-10	YES
	Claims	11-33	NO
Inventive step (IS)	Claims	1-10	YES
	Claims	11-33	NO
Industrial applicability (IA)	Claims	1-33	YES
	Claims		NO

2. Citations and explanations:

The following citations, first raised in the corresponding International Search Report, are referred to as follows:

D1 – US 5 512 287

The invention relates to β-Glucan containing processed cereal grains and methods of producing same. It would appear that there is a need to provide cereal grains which release more β-Glucan (hence improving efficiency) wherein the β-Glucan has a higher molecular weight (which provides certain physiological advantages). It is apparent that this is achieved by heating the cereal grain to a high temperature (above 95C) with greater than 50% water (see, for example, page 8, paragraphs 1-2) because such conditions denatures the degrading enzymes, including beta-amylases and alpha-amylases.

Claims 1-3 relate to a β-Glucan processed cereal grain product possessing certain properties, namely when mixed with water at temperatures between 0 to 55C releases at least 60% of its β-Glucan into the water (claim 1) or when mixed with water in a weight to volume ratio of 1 to 20 at temperatures of approximately 37C for one hour releases 60% of the β-Glucan into the water (claims 2-3), the β-Glucan so released has an average molecular weight of at least greater than approximately 100,000 Daltons (claims 1-2) and/or a specific viscosity greater than approximately 2.0cSt at β-Glucan of approximately 0.5% by weight.

Claim 11 relates to a method of producing a β-Glucan containing product comprising heating β-Glucan containing cereal grain above approximately 60C in the presence of greater than approximately 50% water followed by drying.

D1 discloses a method of production of β-Glucan and the product thereof. In the method, cereal grains are ground, slurried in water below the starch gelatinsation temperature. Bran, starch granules and protein are removed. β-Glucan is precipitated and dehydrated with alcohol, screened and ground to become a white colored product with a neutral flavour. This method recovers 33 to 75% of the total naturally occurring β-Glucan in cereal grains. The recovered β-Glucan is water soluble and has molecular weight from 400,000 to 2,000,000 Daltons.

While it would appear that the β-Glucan produced by the process of D1 is at least similar to that defined by claims 1-3, the processed cereal grains of claims 1-3 (and claims appended thereto) can be distinguished from the β-Glucan of D1 in that the present invention does not require any grinding to release the β-Glucan. That is, claims 1-3 define a "cereal grain product" rather than a ground cereal grain product. Further, given that claims 1-3 are aimed at a different technical problem to D1 (that is, a "cereal grain product" which release β-Glucan under certain water and temperature conditions), it is apparent that claims 1-3 (and claims appended thereto) must be considered inventive.

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: V

Claim 11 (and claims appended thereto) do not appear to exclude the possibility of grinding the grain. Hence the process disclosed in D1 appears to fall squarely within claim 11. Claims 11-33 must, therefore, be considered to lack novelty in the light of D1.

Further, even in the absence of D1, claim 11 cannot be considered novel when compared to standard cooking techniques, including the preparation of boiled or steamed rice in a microwave oven or the stovetop preparation of porridge (oatmeal), both of which involves heating a β-Glucan cereal above 60C in the presence of greater than 50% water followed by drying (such as further heating). It would appear that a great many such techniques would fall within the scope of claim 11.

Claims 11-33 must therefore be considered to lack both novelty and inventive step.